

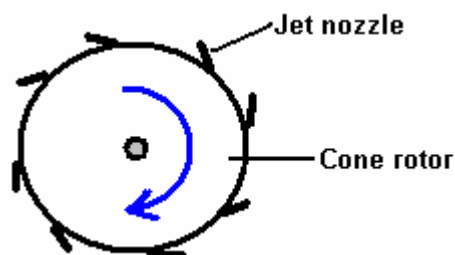
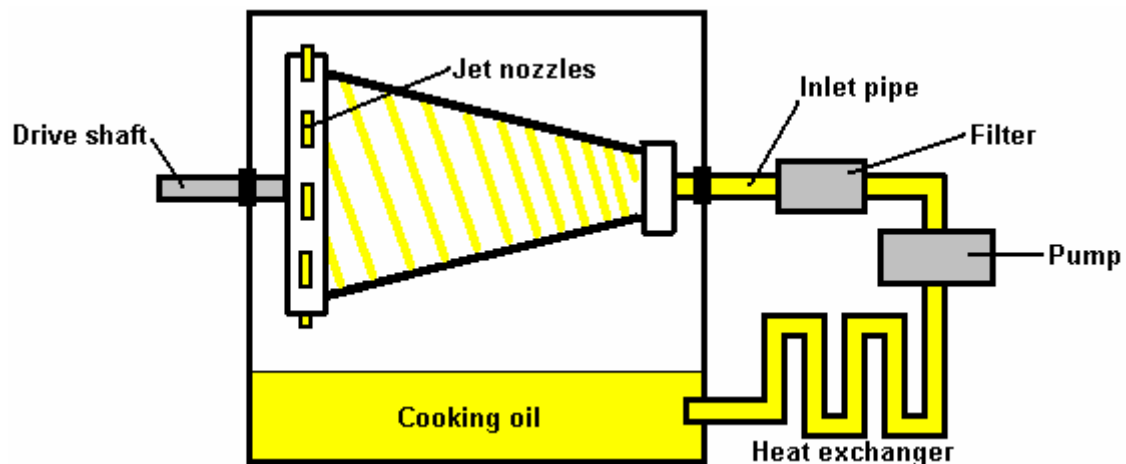
The Self-powered Generator of Donnie Watts

IN 1992, RICHARD CLEM OF TEXAS, DEMONSTRATED A SELF-POWERED ENGINE OF AN UNUSUAL TYPE. THIS ENGINE WHICH HE HAD BEEN DEVELOPING FOR TWENTY YEARS OR MORE, WEIGHS ABOUT 200 POUNDS (90 KILOS) AND IT GENERATED A MEASURED OUTPUT OF 350 HORSEPOWER CONTINUOUSLY OVER THE FULL PERIOD OF A NINE-DAY SELF-POWERED TEST. ALTHOUGH THIS ENGINE RUNS FROM 1800 TO 2300 RPM AND SO IS ESPECIALLY SUITED TO POWERING AN ELECTRICAL GENERATOR, RICHARD DID INSTALL ONE IN A CAR AND ESTIMATED THAT THE CAR WOULD RUN FOR 150,000 MILES WITHOUT ANY NEED FOR ATTENTION AND WITHOUT ANY KIND OF FUEL. RICHARD SAID THAT HIS CAR HAD REACHED A SPEED OF 105 MPH.

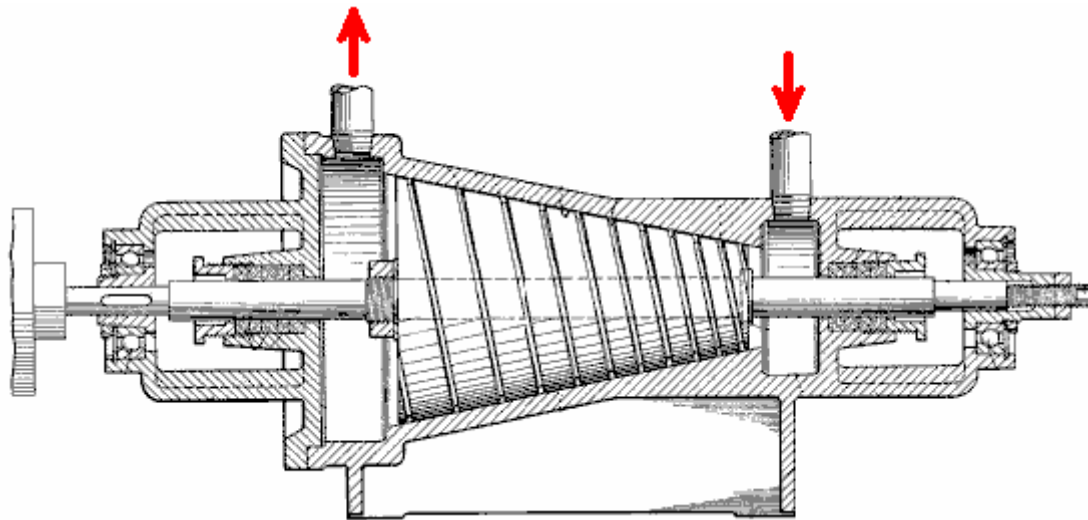
JUST AFTER RECEIVING FUNDING TO PRODUCE HIS ENGINE, RICHARD DIED SUDDENLY AND UNEXPECTEDLY AT AROUND THE AGE OF 48. THE DEATH CERTIFICATE HAD "HEART ATTACK" WRITTEN ON IT AS THE CAUSE OF DEATH. HIS DEATH WAS REMARKABLY CONVENIENT FOR THE OIL COMPANIES WHICH WOULD HAVE LOST A MAJOR AMOUNT OF MONEY THROUGH REDUCED FUEL SALES IF RICHARD'S CAR HAD GONE INTO PRODUCTION.

THE CLEM MOTOR IS UNUSUAL IN THAT IT IS A ROTARY TURBINE STYLE DESIGN WHICH RUNS AT A TEMPERATURE OF 300°F (140°C) AND BECAUSE OF THAT HIGH TEMPERATURE, USES COOKING OIL AS ITS OPERATIONAL FLUID DUE TO ITS HIGHER BOILING POINT. THE MOTOR IS UNUSUAL IN THAT IT IS A ROTARY TURBINE STYLE DESIGN.

IN BROAD OUTLINE, THE OIL IS PUMPED THROUGH A PIPE AND INTO THE NARROW END OF A CONE SHAPED ROTOR. THE ENGINE IS STARTED BY A PUMP PUMPING OIL INTO THE ENGINE UNTIL THE SELF-SUSTAINING ROTATIONAL SPEED IS REACHED. THE RAPID SPINNING OF THE CONE CAUSES OIL TO BE DRAWN UP GROOVES CUT INTO THE CONE (INSIDE THE OUTER CONICAL HOUSING) AND EXIT THROUGH ANGLED NOZZLES AT THE LARGE END OF THE CONE, PROVIDING SELF-SUSTAINING THRUST THERE.



THE OPERATING PRESSURE PRODUCED BY THE PUMP IS 300 TO 500 PSI. RICHARD DID NOT ATTEMPT TO PATENT HIS ENGINE AS US PATENT 3,697,190 OF 1972 WAS SO CLOSE IN DESIGN THAT RICHARD FELT THAT HE WOULD NOT BE GRANTED A PATENT.



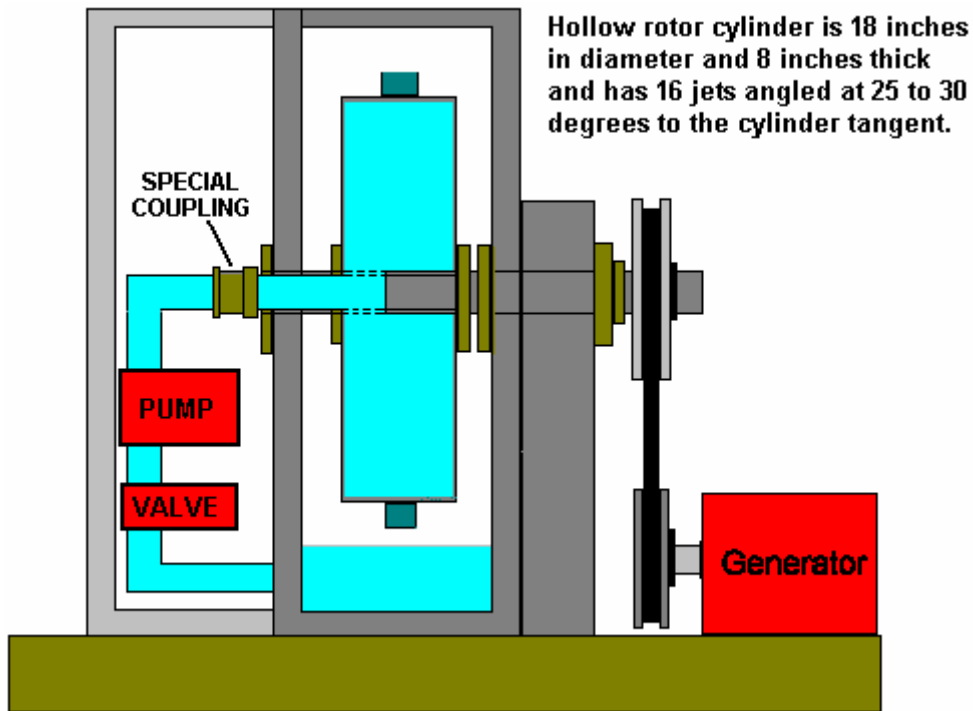
IT APPEARS THAT THE CLEM ENGINE COULD ALSO BE USED AS A HEATER OR IT COULD PROVIDE WATER PURIFICATION AS WELL AS GENERATING POWER.

A SIMPLIFIED VERSION OF THE CLEM ENGINE HAS BEEN PRODUCED BY DONNIE WATTS. HIS VERSION RUNS COLD AND IS SIMPLE ENOUGH FOR HOME CONSTRUCTION. THE REALLY IMPORTANT THING TO UNDERSTAND ABOUT DONNIE WATTS' ENGINE IS THAT IT IS AN **EXPONENTIAL** POWER ENGINE. THE OUTPUT POWER IS PROPORTIONAL TO THE **SQUARE** OF THE ROTATIONAL SPEED, SO IF YOU DOUBLE THE REVOLUTION SPEED THEN THE OUTPUT POWER QUADRUPLES. ALSO, THE POWER OUTPUT IS PROPORTIONAL TO THE **SQUARE** OF THE ROTOR DIAMETER, SO IF YOU DOUBLE THE DIAMETER OF THE ROTOR CYLINDER, THEN THE OUTPUT POWER QUADRUPLES.

THIS MEANS THAT IF YOU DOUBLE THE RPM AND DOUBLE THE DIAMETER, THEN THE OUTPUT POWER GOES UP BY A FACTOR OF SIXTEEN TIMES !! TO GIVE YOU AN IDEA OF THE POWER OUTPUT, A TINY 10-INCH (250mm) DIAMETER CYLINDER VERSION OF THE MOTOR CAN OUTPUT 7.5 KILOWATTS, SO IT CAN EASILY DRIVE A GENERATOR WHICH CAN POWER A HOUSEHOLD. BECAUSE THE OUTPUT POWER KEEPS GOING UP AS THE MOTOR INCREASES IN SPEED, IT IS VITAL TO FIT AND ADJUST A VALVE WHICH LIMITS THE RATE OF WATER FLOW INTO THE ENGINE. THIS IS A BASIC COP=4 MOTOR, THAT IS, THE OUTPUT POWER IS FOUR TIMES GREATER THAN THE INPUT POWER.

JUST LIKE STARTING A CAR ENGINE, IT IS NECESSARY TO START THE MOTOR WITH A 500-WATT WATER PUMP, BUT WHEN THE ROTATION REACHES 60 RPM THE SUCTION INSIDE THE CYLINDER IS ENOUGH TO OPERATE WITHOUT THE PUMP (ALTHOUGH THE PUMP CAN BE LEFT ON IF YOU WANT TO DO THAT). HOWEVER, IT IS VITAL TO HAVE A VALVE WHICH LIMITS THE RATE OF INFLOW OF WATER INTO THE MOTOR BECAUSE IF YOU DON'T THEN THE MOTOR WILL ACCELERATE CONTINUOUSLY UNTIL IT BREAKS DOWN FROM EXCESSIVE INTERNAL PRESSURE.

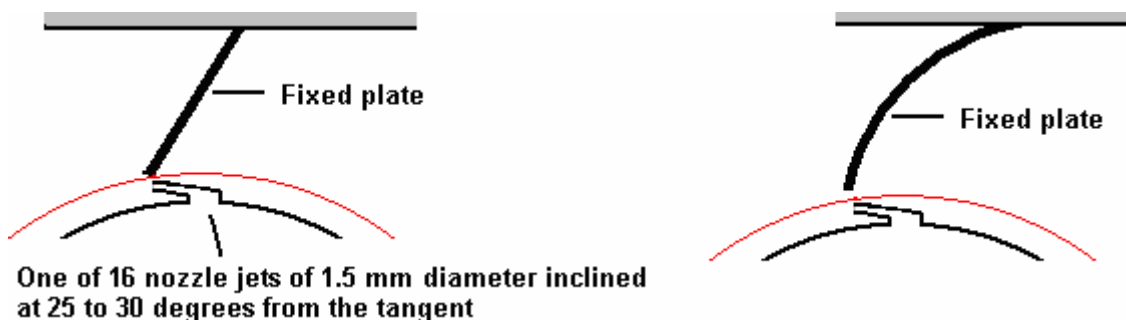
IN PRINCIPLE, THE MOTOR DESIGN IS LIKE THIS :



MOST GENERATORS NEED TO BE SPUN AT 3000 RPM OR SLIGHTLY FASTER. THAT SPEED CAN BE ACHIEVED BY BELT GEARING BETWEEN THE MOTOR'S OUTPUT SHAFT AND THE GENERATOR'S INPUT SHAFT. A GENERATOR OF THAT GENERAL TYPE COULD LOOK LIKE THIS 6.5 KVA UNIT COSTING £325 IN 2017 :



HOWEVER, THE POWER OUTPUT OF THE MOTOR CAN BE INCREASED FURTHER BY THE INCLUSION OF STAINLESS STEEL THRUST BAFFLES ON THE INSIDE OF THE OUTER HOUSING. THE IDEA IS TO HAVE THE JETS OF WATER STRIKE A FIXED SURFACE AT RIGHT ANGLES TO THE JET OF WATER AND AS CLOSE TO THE JET NOZZLE AS IS POSSIBLE :



THE CURVED PLATE VERSION IS THEORETICALLY MORE EFFICIENT BUT THE DIFFERENCE IS SO SLIGHT THAT FLAT PLATES ARE OFTEN USED. THE MOTOR CAN BE BUILT IN VARIOUS CONFIGURATIONS :



THE DRAWINGS ASSOCIATED WITH THIS DEVICE WHICH DONNIE WATTS INSISTS ON CALLING A “CENTRIFUGAL ENERGY AMPLIFICATION AND CONVERSION UNIT” OR “CEACU” FOR SHORT, ARE NOT THE EASIEST TO ALLOW VISUALISATION OF THE FINISHED SHAPE AND HOW BEST TO CONSTRUCT IT.

THE PATENT APPLICATION BY DONNIE WATTS ON THE 25TH SEPTEMBER 1989 DESCRIBES THE OPERATION OF A RATHER LARGE VERSION OF THE DEVICE :

DESCRIPTION AND WORKING DETAILS OF THE CENTRIFUGAL ENERGY AMPLIFICATION AND CONVERSION UNIT

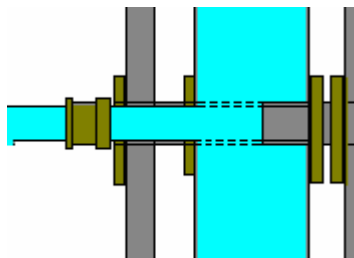
DESCRIPTION OF THE UNIT

THE UNIT CONSISTS OF TWO CIRCULAR STEEL PLATES 3mm THICK AND FOUR FEET (1220mm) OR LARGER IN DIAMETER, FORMING THE OUTSIDE OF A WHEEL. THESE PLATES ARE PLACED SIX INCHES (150mm) APART ON A HOLLOW AXLE THREE INCHES (75mm) IN DIAMETER. BETWEEN THESE TWO PLATES ARE FOUR V-SHAPED PIECES OF SHEET METAL SPACED PRECISELY TO FORM SIX-INCH (150mm) SPOKES WHICH WILL DIRECT WATER FROM HOLES IN THE CENTRAL AXLE TO THE OUTER RIM, WHILE THE INSIDE OF THE V WILL FORM AIR POCKETS BETWEEN THE SPOKES. THE ENDS OF THE V MUST NOT BE CLOSER THAN TWO INCHES (50mm) TO THE OUTER RIM OF THE WHEEL. ALL FOUR V-SHAPED UNITS MUST BE PRECISELY PLACED IN BALANCE WITH EACH OTHER AND WELDED SECURELY TO KEEP THE AIR POCKETS AND WATER POCKETS SEPARATED.

THE OUTER RIM OF THE WHEEL IS MADE OF ONE PIECE OF 3mm THICK SHEET METAL SIX INCHES (150mm) WIDE, FORMED IN A PERFECT CIRCLE AND WELDED SECURELY TO THE EDGE OF THE CIRCULAR PLATES SO THAT THE AREA INSIDE IS COMPLETELY ENCLOSED. ON THIS OUTER RIM, DIRECTLY IN THE CENTRE, ARE PLACED BETWEEN FOUR AND FIFTY WATER JETS ABOUT THE SIZE OF A FOOTBALL NEEDLE, SLANTED SHARPLY TO ONE SIDE TO GIVE THE WHEEL A TURNING MOTION. (THE OPTIMUM NUMBER OF WATER JETS ON THE OUTER RIM DEPENDS ON THE APPLICATION, BUT THE VOLUME OF WATER BEING EXPELLED THROUGH THE JETS MUST NOT EXCEED 66% OF THE VOLUME OF WATER WHICH CAN PASS THROUGH THE OPENINGS IN THE CENTRAL AXLE. THE REASONS FOR THIS ARE :

1. THE WATER GOING OUT OF THE JETS WOULD BE GOING OUT FASTER THAN THE WATER ENTERING THE WHEEL AND THAT WOULD RESULT IN NO PRESSURE NEAR THE OUTER RIM – PRESSURE WHICH IS ESSENTIAL FOR THE RUNNING OF THE MOTOR.
2. THE WATER ENTERING THE WHEEL MUST GO IMMEDIATELY INTO A PUDDLE OF WATER – THE LONGER IT REMAINS AS A STREAM OF WATER RATHER THAN A PUDDLE OF WATER, THE MORE ENERGY IS WASTED.

BECAUSE THE WATER BEING EJECTED THROUGH THE EXTERIOR JETS IS ALWAYS LESS THAN THE AMOUNT OF WATER AVAILABLE TO THE JETS, A PRESSURE BUILD UP WILL OCCUR NEAR THE OUTER RIM. A SPRING-LOADED PRESSURE RELEASE JET (NOT SHOWN) MUST BE BUILT INTO THE EXTERIOR RIM ALONG WITH THE OTHER JETS, BUT FACING IN THE OPPOSITE DIRECTION TO KEEP THE WHEEL FROM OVER-SPINNING IF THE LOAD (GENERATOR) IS DROPPED OR DOES NOT TAKE ENOUGH POWER OFF TO KEEP THE WHEEL SPEED CONSTANT. THERE ARE SEVERAL OTHER WAYS TO CONTROL THE WHEEL SPEED.



THE CENTRAL AXLE HAS WATER GOING INTO IT AT ONE END AND AN ELECTRICAL GENERATOR ATTACHED TO IT AT THE OTHER END. TOUCHING THE WHEEL ON BOTH SIDES ARE ROBUST ROLLER BEARINGS OR BALL BEARINGS FULLY SUPPORTED SO THAT THE WHEEL IS HELD ONE FOOT (300mm) ABOVE THE FLOOR. WATER IS FORCED INTO THE AXLE BY A HIGH-VOLUME LOW-POWER CENTRIFUGAL FORCE PUMP OF ABOUT HALF OF A HORSEPOWER AND AT A RATE OF 20 US GALLONS PER MINUTE (75 LITRES PER MINUTE) DEPENDING ON SPEED AND POWER REQUIREMENTS. THE WATER PUMP IS INTENDED

PRIMARILY TO START THE MOTOR BUT SINCE THAT POWER IS ADDED TO THE POWER OUTPUT OF THE BIG WHEEL, DONNIE WATTS PREFERS TO LEAVE THE PUMP RUNNING DURING OPERATION.

THE ENTIRE UNIT (DEPENDING ON APPLICATION) CAN BE PUT INTO A CONTAINMENT SHELL WHICH CAN BE PRESSURISED OR EVACUATED OF AIR. IF THE UNIT IS TO BE OPERATED IN AN OPEN FIELD, THEN THE OUTER SHELL CAN BE PRESSURISED AND THE STARTING PUMP CAN BE REMOVED OR TURNED OFF ONCE THE MOTOR IS RUNNING BY ITSELF. IF THE UNIT IS TO BE OPERATED IN A GARAGE OR NEAR A HOUSE, IT WOULD BE OPERATED AT ATMOSPHERIC PRESSURE OR IN A VACUUM, IN WHICH CASE IT IS NECESSARY TO LEAVE THE PUMP ATTACHED AND RUNNING SO THAT AIR BUBBLES DO NOT FORM NEAR THE CENTRAL AXLE.

ALSO, THE CONTAINMENT SHELL MUST BE ABLE TO COLLECT ABOUT TEN INCHES (250mm) OF WATER IN THE BOTTOM AS A RESERVOIR READY TO BE PUMPED BACK THROUGH THE WHEEL.

IMPORTANT NOTES :

1. THE SPEED AND HORSEPOWER CURVE OF A SELF-ENERGISED MOTOR IS EXACTLY THE OPPOSITE OF THAT OF A NORMAL MOTOR. A NORMAL MOTOR REACHES A POWER PEAK AND THEN STARTS DOWNWARDS. THE POWER CURVE OF A SELF-ENERGISED MOTOR STARTS WITH A SLOW UPWARD CLIMB AND THEN ACCELERATES RAPIDLY UNTIL THE POWER LINE IS ALMOST VERTICAL (JUST PRIOR TO DISINTEGRATION IF SPEED CONTROL IS NOT BEING USED).

THIS MOTOR WILL NOT GENERATE MORE ENERGY THAN IS PUT INTO IT UNTIL IT REACHES 60 TO 100 RPM, DEPENDING ON DESIGN AND SIZE.

2. AS SPEED INCREASES, AIR BUBBLES WHICH OCCUR IN THE WATER, WILL ACCUMULATE IN THE AIR POCKETS INSIDE THE WHEEL. THE AIR POCKETS SERVE ONLY TO HOLD THE PRESSURE STEADY AND GIVE A GENTLE PERSUASIVE PRESSURE THAT IS MULTI-DIMENSIONAL INSTEAD OF JUST CENTRIFUGAL, RESULTING IN A STEADY PRESSURE ON THE JETS. IT IS JUST NOT PHYSICALLY POSSIBLE FOR THE UNIT TO BLOW ITSELF APART BY ITS OWN POWER.

3. THE PRESSURISED AIR IN THE OUTER RIM OF THE WHEEL IS ESSENTIAL BECAUSE IT PUSHES IN ALL DIRECTIONS AT ONCE, WHILE THE WATER PUSHES IN ONLY ONE DIRECTION. IN OTHER WORDS, CENTRIFUGALLY FORCED WATER IS NOT INTERESTED IN FINDING ITS WAY THROUGH THE JETS, IT IS ONLY INTERESTED IN PRESSING DIRECTLY AGAINST THE OUTER RIM. THE WATER HOLDS THE AIR IN PLACE AT THE SAME TIME THAT THE AIR IS FORCING THE WATER THROUGH THE JETS AND THE WATER COMING DOWN FROM THE AXLE KEEPS REPLACING THE EXPELLED WATER. THIS IS WHY DONNIE KEEPS SAYING OVER AND OVER AGAIN "MAKE IT BIG ENOUGH, MAKE IT BIG ENOUGH", OTHERWISE IT WOULD BE NO MORE WORKABLE THAN A SMALL DAM.

4. IN ORDER FOR THIS MOTOR TO WORK PROPERLY, THE WATER COMING DOWN THE SPOKES MUST NOT BE RESTRICTED IN ANY WAY UNTIL IT REACHES THE OUTER RIM. THIS IS WHY WE HAVE SIX-INCH SPOKES. THE WATER RESTING AGAINST THE OUTER RIM CANNOT BE MOVING ABOUT RAPIDLY; WE WANT THE WATER SITTING AS STILL AS POSSIBLE AND UNDER AS MUCH PRESSURE AS POSSIBLE.

5. THERE ARE TWO PRIMARY FACTORS WHICH MUST NOT BE ALTERED IN THE DESIGN OF THIS WHEEL, OTHERWISE IT WILL NOT WORK :

1. THE SPOKES MUST BE VERY LARGE AND FREE OF OBSTRUCTIONS, BECAUSE LIQUID IN GENERAL TENDS TO CLING TO ANYTHING IT GETS NEAR.

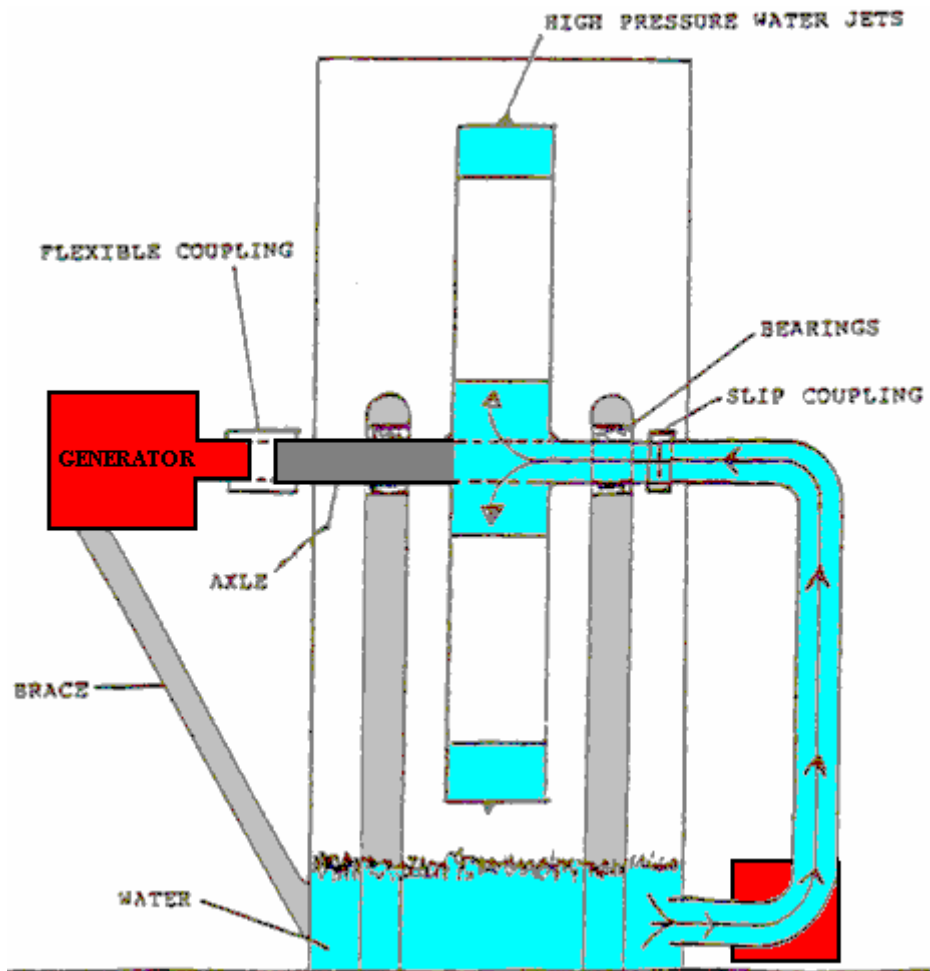
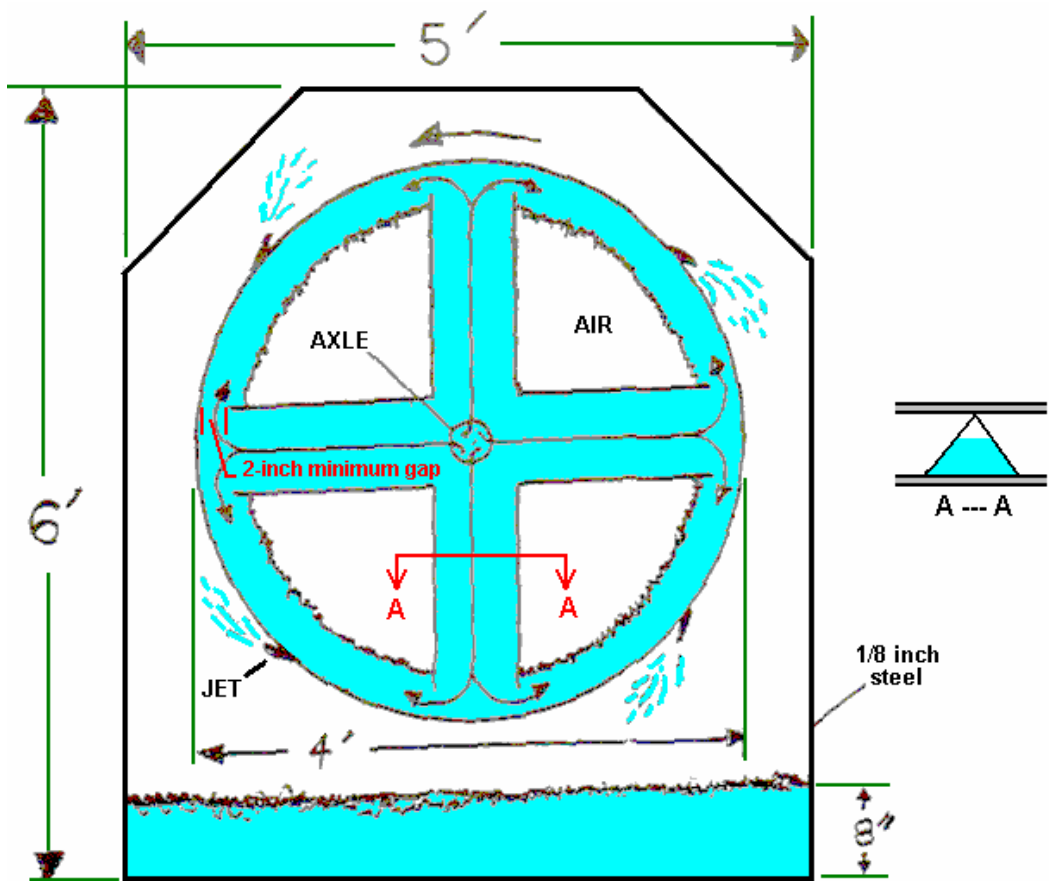
- 2. THE SPEED OF THE WHEEL TURNING IS ESSENTIAL TO THE CENTRIFUGAL FORCE REQUIRED TO BUILD UP PRESSURE NEAR THE OUTER RIM AND FOR THAT REASON THE JETS IN THE OUTER RIM MUST BE SMALL IN DIAMETER AND IN LARGE NUMBERS SO THAT THE CONCENTRATION IS ON SPEED INSTEAD OF ON VOLUME (BUT THE VOLUME MUST NOT EXCEED 66% OF THE WATER WHICH CAN ENTER AT THE CENTRAL AXLE).**

- 6. REGARDING THE WORKING FLUID: ALTHOUGH IT HAS BEEN REFERRED TO AS “WATER”, THE WORKING FLUID CAN BE ANY KIND OF TRANSMISSION FLUID, OIL, HYDRAULIC FLUID, ETC., KEEPING IN MIND THAT THE WORKING FLUID MUST ALSO ACT AS A LUBRICANT FOR THE BEARINGS WHICH ARE EXPECTED TO LAST FOR TEN TO TWENTY YEARS. DONNIE RECOMMENDS REGULAR OFF-THE-SHELF TRANSMISSION FLUID, WHICH HE HAS SEEN USED ALONE IN A CAR ENGINE WITH LUBRICATION RESULTS QUITE COMPARABLE TO OIL.**

- 7. TO THE READER WHO WOULD SCOFF AT THE IDEA THAT ENERGY CAN BE DERIVED FROM PRESSURISED SYSTEMS, DONNIE OFFERS THE FOLLOWING FACTS :**
 - 1. SIX MONTHS AGO IT WAS DEMONSTRATED ON TV THAT A HIGH-PRESSURE STREAM OF WATER ABOUT THE SIZE OF A FOOTBALL NEEDLE WOULD CUT THROUGH A STEEL PLATE ONE INCH (25mm) THICK, ALSO A TWO-INCH THICK PHONE BOOK AND THE CUT WAS CLEAN NO MATTER HOW FAST THE MATERIAL TO BE CUT WAS MOVED.**

 - 2. ALSO, THERE IS A TURBINE AIR MOTOR MADE BY TECH DEVELOPMENT INC. OF OHIO. IT HAS AN OUTPUT OF 720 HORSEPOWER WITH AN INPUT AIR PRESSURE OF 321 PSI. THIS MOTOR IS ONLY 7 INCHES (178mm) IN DIAMETER AND 14 INCHES (355mm) LONG AND RUNS AT 8400 RPM. THIS IS NOT AN OVER-UNITY MOTOR NOR IS IT RELATED TO THE CEACU MOTOR IN ANY WAY, BUT IT IS AN INDICATION OF WHAT CAN BE DONE WITH PRESSURISED SYSTEMS.**

- 8. THE PRIMARY FUNCTIONAL DIFFERENCES BETWEEN MY MOTOR AND DAMMING UP A RIVER ARE : WE CREATE OUR OWN “GRAVITY” AND PRE-DETERMINE THE AMOUNT OF THAT GRAVITY BY TWO METHODS INSTEAD OF JUST ONE. THE GRAVITY IN A DAM CAN ONLY BE INCREASED BY INCREASING THE SIZE OF THE DAM, WHILE THIS MOTOR CAN ALSO INCREASE OUTPUT BY INCREASING THE RPM.**



THE ONLY DIFFICULT PART OF THIS DESIGN APPEARS TO BE THE SLIP COUPLING WHERE A STATIONARY WATER PIPE IS JOINED TO A ROTATING WATER PIPE. WHILE WE ARE FAMILIAR WITH ROTATING LAWN SPRINKLERS WHICH ROTATE USING EXACTLY THE SAME PRINCIPLE OF IMPULSE JET ACTION AS SHOWN HERE :



THE KEY POINT IS THAT THE RATE OF ROTATION IS LOW. THAT IS ENTIRELY INTENTIONAL AS THE MANUFACTURER IS CONSIDERING THE WAY THAT THE VARIOUS STREAMS OF WATER REACH THE GROUND. THE FASTEST LAWN SPRINKLER IS LIKELY TO BE ROTATING AT UNDER 300 RPM WHICH IS VERY MUCH SLOWER THAN OUR MOTOR REQUIREMENT.

RESEARCHING THE VARIOUS COUPLINGS ON THE MARKET, THE MAXIMUM RATE OF ROTATION QUOTED IS TYPICALLY 400 RPM OR LESS, WHICH MAY BE WHY DONNIE WATTS QUOTES SUCH A LARGE ROTOR DRUM SIZE AND THREE-INCH DIAMETER AXIAL SUPPLY PIPE. SUITABLE COUPLINGS COULD BE :

https://www.alibaba.com/product-detail/50A-npt-male-thread-brass-water_2009800594.html

OR

https://www.alibaba.com/product-detail/Mechanical-brass-fitting-3-4-2_60520780545.html

AS THEY CLAIM 2000 RPM CAPABILITY :

